## II. AMENDMENTS TO THE CLAIMS

The text of all claims under examination is submitted, and the status of each is identified. This listing of claims replaces all prior versions and listings of claims in the application.

1. (Currently Amended) A Ca-Mm-Ni based alloy of the $AB_5$ type, said alloy being of the formula:

$(Ca_xM_{1-x})_t(Ni_{1-y}T_y)_5$ (I)

where M is selected from the group consisting of: any mischmetal, any rare earth metal, and an homogeneous or an inhomogeneous combination of any of: (i) at least two mischmetals, (ii) at least two rare earth metals, and (iii) at least one mischmetal and at least one rare earth metal; ~~metal.~~

where T is selected from the group consisting of: metalloids, and an homogeneous or an inhomogeneous combination of at least two metalloids;

where $0<x\leq1$;

where $0<y\leq0.5$; and

where $0.8\leq t\leq1.2$.

2. (Currently Amended) The alloy of claim 1, wherein, in the formula I:

$0.4\leq x\leq1$;

$0<y\leq0.3$; and

~~$0.85t\leq1.2$~~ $0.85 \leq t \leq 1.2$.

3. (Currently Amended) The alloy of claim 1 ~~or 2,~~ wherein:

M is a mischmetal; and

T is any of Si, Ge and Ga.

4. (Currently Amended) The alloy of claim 1 ~~or 2,~~ wherein:

M is a mischmetal; and

the metalloid of T is any of Si, Ge, and Ga.

5. (Currently Amended) A method ~~Use of the alloy of claim 1, 2, 3 or 4~~ for storing hydrogen comprising using a Ca-Mm-Ni based alloy of the $AB_5$ type to store hydrogen, where the alloy has the formula:

$(Ca_xM_{1-x})_t(Ni_{1-y}T_y)_5$ (I), where M is selected from the group consisting of: any mischmetal, any rare earth metal, and an homogeneous or an inhomogeneous combination of any of: (i) at least two mischmetals, (ii) at least two rare earth metals, and (iii) at least one mischmetal and at least one rare earth metal; where T is selected from the group consisting of: metalloids, and an homogeneous or an inhomogeneous combination of at least two metalloids; where $0<x\leq1$; where $0<y\leq0.5$; and where $0.8\leq t\leq1.2$.

6. (Currently Amended) A method of preparation of an alloy ~~of being of this~~ having the formula:

$(Ca_xM_{1-x})_t(Ni_{1-y}T_y)_5$ (I)

where M is selected from the group consisting of: any mischmetal, any rare earth metal, and an homogeneous or an inhomogeneous combination of any of: (i) at least two mischmetals, (ii) at least two rare earth metals, and (iii) at least one mischmetal and at least one rare earth metal; ~~metal.~~

where T is selected from the group consisting of: metalloids, and an homogeneous or an inhomogeneous combination of at least two metalloids;

where $0<x\leq1$;

where $0<y\leq0.5$; and

where $0.8\leq t\leq1.2$;

wherein the method of preparation comprises: ~~comprising the steps of:~~

a) preparing a powder by milling a mixture of elemental powders and/or pre-alloyed substances of the elemental ingredients of the alloy to be prepared in adequate proportions to obtain the required alloy; and

b) annealing and/or sintering the so prepared powder at elevated temperatures in a crucible for a short period of time in an inert or reactive atmosphere.

7. (Currently Amended) The method ~~process~~ of claim 6, wherein the milling in step (a) consists of a ball milling or mechanical alloying.

8. (Currently Amended) The method ~~process~~ of claim 7, wherein the milling in step (a) is carried out in the presence of at least one anti-sticking agent.

9. (Currently Amended) The method ~~process~~ of claim 6 ~~any one of claims 6 to 8~~, wherein the annealing and/or sintering in step (b) is carried out at a temperature higher than 600°C but not higher than 1100°C in a steel crucible.

10. (New) The alloy of claim 2 wherein:

M is a mischmetal; and

T is any of Si, Ge and Ga.

11. (New) The alloy of claim 2 wherein:

M is a mischmetal; and

the metalloid of T is any of Si, Ge, and Ga.

12. (New) The method of claim 5, wherein, in the formula I:

$0.4 \leq x \leq 1$;

$0 < y \leq 0.3$; and

$0.85 \leq t \leq 1.2$.

13. (New) The method of claim 5 wherein:

M is a mischmetal; and

T is any of Si, Ge and Ga.

14. (New) The method of claim 5 wherein:

M is a mischmetal; and

the metalloid of T is any of Si, Ge, and Ga.

15. (New) The method of claim 12 wherein:

M is a mischmetal; and

T is any of Si, Ge and Ga.

16. (New) The method of claim 12 wherein:

M is a mischmetal; and

the metalloid of T is any of Si, Ge, and Ga.

17. (New) The method of claim 7 wherein the annealing and/or sintering in step (b) is carried out at a temperature higher than 600°C but not higher than 1100°C in a steel crucible.

18. (New) The method of claim 8 wherein the annealing and/or sintering in step (b) is carried out at a temperature higher than 600°C but not higher than 1100°C in a steel crucible.